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PROCEEDINGS

OF

THE ROYAL IRISH ACADEMY.

1846–7. No. 64.

April 12th, 1847.

REV. HUMPHREY LLOYD, D. D., President, in the Chair.

Abraham Whyte Baker, Esq.; James W. M. Berry, Esq.; Richard V. Boyle, Esq.; Sir Thomas Esmonde, Bart.; Nathaniel Hone, Esq.; and Philip Jones, Esq.; were elected Members of the Academy.

Dr. Allman made a communication on the Structure of the Fruit and Mechanism of Dehiscence in some of the *Hepaticæ*, and on the probable Origin of the Organs known by the name of Elaters in these Plants.

In this paper the author demonstrated the existence, in the sporangia of *Jungermannia, Marchantia,* and *Fegatella,* of spiral cells similar to those found in the lining membrane of the anthers of flowering plants. The sporangium of these genera is composed of a single layer of such cells immediately enclosing the spores and elaters. The author described the circumstances which he had observed to attend the phenomenon of dehiscence in *Fegatella conica*. In this plant the peduncle of the sporangium is connected with the fundus of the calyptra by a mass of loose, succulent, cellular tissue. At the period of dehiscence this mass becomes rapidly enlarged, apparently by engorgment of fluid, and, by acting against the more resisting receptacle, forces the sporangium with its pedicle through the mouth of the calyptra, beyond the margin of the receptacle. The peculiar spiral cellular tissue of the sporangium is thus brought into direct contact with the atmosphere, and the hygroscopic properties of this tissue placed in a condition for manifesting themselves. The result of this is the dehiscence which takes place in the exposed portion of the sporangium, in consequence of the balance of tension in the opposite walls of the cells being disturbed. The author was, moreover, of opinion that the presence of elaters in the hepaticæ might be accounted for by supposing the separation, in an early period, of certain cells from the sporangium walls; that these, falling into the cavity, retain for a certain time their independent vitality, and become developed into the peculiar organs in question, lying at last free among the spores. He could not assent to the doctrine so generally promulgated, that the elaters assist in the dispersion of the spores.

Dr. Allman also read a paper on the external anatomy of *Chelurus*, Phil., a genus of *Amphipodous Crustacea*, destructive to submarine timber works.

In this communication the author gives a detailed description of the external anatomy and zoological relations of an amphipodous crustacean, recently discovered by Mr. Mullins, C. E., in the timber jetty at Kingstown Harbour, where it has been doing a vast amount of mischief by destroying the timber of the submarine works in that locality. It proves, on investigation, to be referable to a genus established by Philippi, under the name of *Chelurus*, for a crustacean discovered by this naturalist at Trieste.* The Irish specimens, however, differ in certain points from the animal as described by Philippi; and Dr. Allman thought it not impossible that these differences would indicate a distinct species, which might be noted under the name of *C. destructor*, as distinguished from the *C. terebrans* of Philippi. As, however, it is by no means improbable that the differences in question are referable to slight inaccuracies in the memoir of the continental zoologist, the proposed distinction was considered purely provisional, to be confirmed or rejected according as actual comparison of specimens shall decide. The following summary of the generic characters of *Chelurus*, more condensed than that given in the memoir of Philippi, was proposed by Dr. Allman :

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* See Wiegmann's Archiv. für Naturgesch., 1839.

CHELURUS, *Philippi.*

Gen. Cha.—*Body* not compressed; *head* distinct; superior *antennæ* shorter and more slender than the inferior, and consisting of a peduncular portion, which supports two unequally developed rami.* Inferior *antennæ* large, not divisible into a distinct peduncle and ramus. *Mandibles* strong, palpigerous; furnished with a molar tubercle, with transverse ridges. First pair of maxillæ strong, pyramidal, palpigerous; second pair lamelliform. *Maxillary feet* large, bearing a palp-like stem, and united at their origin, so as to constitute a great opercular lip, covering all the other organs of the mouth. *Thorax* composed of seven distinct segments, with the epimeræ distinct, and moderately developed. First two pairs of *thoracic legs*, didactyle; five remaining pairs terminated by a small, unop-

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* Philippi takes no notice of this character of the superior antennæ, and simply describes them as setaceous, with seven articulations; whereas the number of articulations, in the animal I have examined, are three in the peduncular portion, and six in the larger ramus. I cannot, however, help believing that this excellent naturalist has, in the hurry of examination, overlooked the real form of these antennæ; otherwise I would feel well inclined to consider the character in question as affording sufficient grounds to separate generically the Irish from the Mediterranean amphipod.

posable articulation. First three segments of *abdomen*, each bearing a pair of biramous, natatory feet; remainder of abdomen consisting of one very large trunk, supporting anteriorly a pair of large, foliaceous, lobed appendages, and a pair of cylindrical false feet, and terminated posteriorly by two lamellar leaping organs, and an intermediate leaf-like lobe.

1. *C. terebrans*, Philippi.—Last three pairs of thoracic feet with the terminal joint foliaceous. *Hab.*—Coast of Trieste.

2. *C. destructor*, Mihi (provisional species).—All the thoracic feet, except the first two, terminated by a small hooked claw. *Hab.*—Irish coast.

The author, after entering into the details of the external anatomy of *Chelurus*, maintains the necessity of considering this genus as the type of a distinct family among the amphipoda, assuming as the grounds of the assigned rank the remarkable condition of the posterior region of the abdomen, the first, second, and third ring of this region being consolidated into one great trunk, bearing three pairs of *heteromorphous* appendages. Availing himself, therefore, of the characters derived from these considerations, the families of amphipodous crustacea were analytically arranged as follows:

			Family.
AMPHIPODA.	Fourth and fifth abdominal segments confluent; abdominal appendages of the fourth and fifth pair very different in form (heteromorphous).		CHELURIDÆ.
	Fourth and fifth abdominal segment distinct; abdominal appendages of the fourth and fifth pair nearly similar in form (isomorphous).	Mouth concealed by the maxillary feet.	GAMMARIDÆ.
		Mouth not concealed by the maxillary feet.	HYPERIDÆ.

Dr. Allman also read a paper on a new Genus and Species of *Entomostraca.*

The little animal which formed the subject of this communication inhabits the branchial sac of *Ascidia communis*, in which it may be observed swimming freely during, perhaps, all seasons of the year. The author describes it under the name of *Notodelphys ascidicola,* and assigns to it the following generic characters:

Notodelphys,* *Mihi.*

Gen. Cha.—Body elongated; *head* scutiform, and bearing in front a solitary median eye; *antennæ* two, filiform, multiarticulate; *mouth* with a pair of mandibles, and surrounded by five additional pairs of appendages, of which the anterior, as well as the last two pairs, are prehensile; *thorax* having but two rings distinct, the anterior one being confounded with the head. Female with a large dorsal ovigerous receptacle immediately behind the last distinct thoracic ring. Locomotive *feet,* four pairs; biramous natatory, each pair having an intermediate plate; *abdomen* with about five rings, the last of which is terminated by two setigerous appendages.

Species unica.—*N. ascidicola. Hab.*—swimming freely in the branchial sac of *Ascidia communis,* Irish and English coasts.

The author, after entering into numerous details relative to the anatomy of the new entomostracon, and describing four distinct phases in its development, maintained that the ovigerous receptacle was formed by a peculiar development of the dorsal arches of a certain number of posterior thoracic rings, and that it was the true representative of the singular, elytroid, dorsal appendages of the thorax in *Anthosoma, Cecrops,* and certain other suctorial crustacea. He was, moreover, of opinion, that the genus *Notodelphys* presents us with a most interesting transitional form between the true entomostraca and the suctorial crustacea. Its perfect mandibulate mouth will at once place it with the former,—a position, indeed, which its highly developed natatory feet and active habits, as well as its general physiognomy, would, in the first instance, suggest. The form, on the other hand, of the accessory oral organs, or maxillary feet, which are here constructed so as to constitute organs of attachment, as well as the singular development of the dorsal arch of the posterior thoracic ring, and the connexion of the feet of opposite sides, through the intervention of a large intercoxal plate,—a striking feature in the greater number of the suctorial crustacea, but not found in the true entomostraca,—unite with the semi-parasitical habits of *Notodelphys* in indicating an affinity not to be mistaken with the true suctorial tribes.

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* From *νῶτος*, *tergum*, and *δελφύς*, *matrix.*

Dr. Allman read another paper on a new Genus and Species of *Tracheary Arachnidans.*

In this paper the author described a *Tracheary arachnidan* discovered by Dr. O'Brien Bellingham in the posterior nares of a seal (*Halichœrus gryphus*). It turns out, on examination, to be generally distinct from all the forms hitherto on record, and Dr. Allman assigned to it the appellation of *Halarachne Halichœri*, with the following generic characters:

HALARACHNE,[*] *Mihi.*

Gen. Cha.—*Palps* free, filiform; *mandibles* didactyle; sternal *lip*, bifid; *legs* with the last joint terminated by two hooks, and an intermediate three-lobed caruncle; *body* entire, elongated, sub-cylindrical, furnished anteriorly with a dorsal plate; *eyes*, none.

Species unica.—*H. Halichœri.* *Hab.*—Infesting the posterior nares of *Halichœrus gryphus*, Irish coast.

H. Halichœri possesses a very distinct tracheary system, opening externally by means of two spiracles, which are placed one at each side of the anterior extremity of the abdomen. The alimentary canal, just before its termination at the posterior extremity of the abdomen, receives two long cæca, which may be traced forwards, one at either side of the body, till they terminate anteriorly by entering the basal joint of the first pair of legs. A large central nervous mass may be easily demonstrated. It is placed near the middle of the cephalothorax, of a somewhat stellate figure, with four pyriform lobes, from which nervous filaments pass off to the surrounding parts.

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[*] From *ἅλς*, *mare*, and *ἀράχνη*, *aranea.*

The reproductive system is very obscure ; to it, however, may probably be referred a pair of tubular organs, placed in the anterior part of the abdomen, terminating at one end in a *cul de sac*, which contains a striated, curved body, and apparently opening at the other upon the surface. The larva is hexapod. The structure of the oral organs is similar to what occurs in *Gamasus*.

Sir Robert Kane read a paper on the composition of the essential Oil of the Laurus Sassafras, and of certain compounds derived from it.

This oil, which has a specific gravity of 1087, boils at 438° Fahr. By fusion with potash it is not acidified. Its composition was found to be expressed by the formula $C_{20}\ H_{10}\ O_4$, the same as that obtained by Saint Evre for the stearopten, with which it is consequently isomeric.

When this oil is treated with chlorine, a great deal of muriatic acid gas is produced and given off, and finally a very thick liquid is produced, which requires to be kept for a long time at a temperature of boiling water to free it from the excess of muriatic acid gas; the same may be done by washing with a small quantity of water of ammonia, and then exposure to a moderate temperature, when the chlorine compound can be obtained again, quite anhydrous. Its formula is found to be $C_{20}\ H_8\ O_4\ Cl_4$. When this body is heated to about 350° of Fahr., it suddenly and violently decomposes, gives off much muriatic acid, and deposits a large quantity of charcoal.